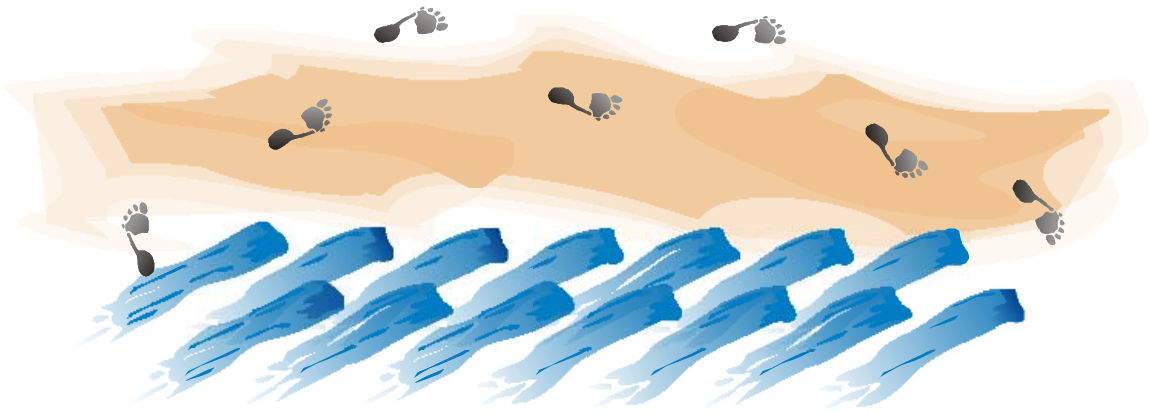
Marine Protected Areas Social Science Workshop

Notes from Breakout Groups



National Marine Protected Areas Center
Science Institute

Marriott Hotel, Monterey, California
April 8 and 9, 2002

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WORKSHOP SUMMARY

As the health of the world's oceans continues to decline, policy makers, resource management agencies, conservation organizations and other stakeholders are increasingly turning to marine protected areas (MPAs) to sustain our most important marine ecosystems. However, while our understanding of these special places grows through natural science research and monitoring, it is becoming increasingly clear that the most significant challenges facing agencies charged with their conservation stem from the dearth of science-based knowledge about how people perceive, value and use the ocean.

Recognizing the fundamental importance of the human dimension in the success of marine protected areas, the Marine Protected Areas Center held an unprecedented international meeting to identify social science research needs for MPAs. The goal of the workshop was to identify and prioritize economic, social and cultural aspects of MPA issues and information needs. Over seventy-five social scientists, MPA practitioners, policy-makers and stakeholders were convened for this two-day facilitated workshop, which was co-sponsored by the Canadian Department of Fisheries and Oceans and developed in partnership with Duke University and the University of California at Santa Cruz. The participants were divided into six small groups to concentrate on six themes:

- attitudes, perceptions and beliefs
- community organization economics of MPAs
- cultural heritage and resources
- economics of MPAs
- governance and institutional structures
- use patterns

Through the course of the two days the participants identified priority research topics for their themes, and highlighted a number of crosscutting needs and gaps in the application of social science to design and manage MPAs.

The workshop began with introductory presentations on the national MPA initiative, including the efforts to implement the Executive Order on MPAs (Wahle, NOAA), and on the formidable challenges of producing and using social science in the environmental policy and management process related to MPAs (Orbach, Duke). The participants then broke into facilitated working groups in the six theme areas mentioned above. Ultimately, each group was asked to address three aspects of each theme: (i) research topics and projects; (ii) existing data and information related to those topics, and (iii) research tools available for research, data management, and interpretation of the data and information for different uses and audiences. In addition to addressing the key questions, the groups also provided invaluable insight into many related ideas about how to construct a successful research program, how to handle constraints on data acquisition and security unique to socioeconomic issues, and how to improve decision-making processes that design and manage MPAs. Each working group reported to the entire workshop throughout the two days, and the workshop closed with an extraordinarily effective summary session consisting of working group reports and a brief synthesis discussion.

This document summarizes the preliminary results of the workshop. It presents the raw notes from each thematic work group, (also posted on the MPA Center website www.mpa.gov). Gaps in information will be filled as a follow up to the workshop. This summer, these workshop results will provide the foundation for an effort to craft a comprehensive, national Social Science Research Strategy for MPAs. This national strategy will identify and prioritize key social science issues and information needs, and recommend practical ways to meet them through research, assessment, capacity building and leveraged funding.

The strategy is intended to: (a) highlight priority research needs for funders and agencies; (b) identify potential areas of collaboration among scientists, MPA practitioners and other stakeholders; and, (c) provide a framework for incorporating social science in MPA planning and management. The final MPA Social Science Research Strategy – expected late this year - will then be used to guide a series of focused regional workshops to identify more specific regional priorities and action plans to fully integrate the social sciences in MPA planning and management on a relevant scale.

For additional information on this workshop or on the upcoming MPA Social Science Strategy, please contact: Sarah C. Lyons, (831) 420-3958, Sarah.Lyons@noaa.gov or Dr. Charles M. Wahle, (831) 420-3956, Charles.Wahle@noaa.gov, of NOAA's MPA Center in Santa Cruz, California.

NOTES FROM BREAKOUT GROUPS

Each breakout group addressed a number of core questions or topics involving the design, establishment and management of MPAs. To the extent possible given time constraints, participants listed key projects that would fill important information gaps and characterized the projects by the relative availability of existing information (High, Medium, Low) and by the principal survey and analytical tools and approaches they would require.

Theme 1: Attitudes, Perceptions and Beliefs

Theme Definition: This theme covers the underlying motivations that influence human preferences, choices and actions. It examines the measures that shape human behavior and how these behaviors affect marine protected areas.

Group Participants: Susan Abbott-Jamieson, Lil Alessa, Dorinda Dalmeyer, Monica Hunter, Susan Lovelace, Marc Miller, Mel Moon, Richard Stoffle, Manuel Valdes Pizzini, Leah Bunce, Jennifer Ise, Betsy Nicholson

Facilitator: Tom Fish

Scribe: Colleen Hard

Constituents' (including users, general public, managers) and stakeholders social and cultural attitudes, values, beliefs, perceptions, and preferences regarding:

Topic 1: The natural world and state of the environment	
Project Title:	**Information:**
Baseline assessment of knowledge of habitats, species, spaces and ecological processes	*Existing Information*: L, may be very localized *Tools*: Surveys, in depth interviews (10 Q survey from UNEP), standardized instruments
Identification of jurisdictions, groups, and interests according to their relationship to MPAs	*Existing Information:* M *Tools:* GIS, surveys, interviews, archival research, databases
Assessment and comparison of perceptions of current environmental status	*Existing Information*: L *Tools*: Surveys, interviews, visual perception scales, content analysis, archival research
Assessment of the role of ocean centrality (i.e., the role of the ocean in individuals' and communities' lives and worldviews)	*Existing Information:* L, very localized *Tools:* databases, focus groups, national surveys, interviews
Identification and measurement of environmental threats and impacts	*Existing Information:* M, resource specific, hazard specific *Tools:* visual perception scale, simulations, content analysis, surveys, interviews
Assessment of the effects of MPAs on quality of life	*Existing Information:* H, but general; L, if specific *Tools:* surveys, interviews

Topic 2: Natural resource management and decision-making at different temporal and spatial scales	
Project Title:	**Information:**
Examination of the relationship among sovereignty, degree of encroachment, and ownership	*Existing Information*: L *Tools*: Surveys, interviews
Assessment of management strategies (past, current, and planned), management authorities, and jurisdictions	*Existing Information*: L *Tools*: Key informant interviews, outcome analysis, content analysis, QSort methodology, modeling future MPA scenarios
Comparative study of existing assumptions of the purpose of MPAs	*Existing Information*: L, region specific *Tools*: Surveys, interviews
Examination of environmental justice in MPAs	*Existing Information*: H, general; L for MPAs *Tools*: Ethnography, surveys, modeling, census data analysis,
Assessment of the evolution of the public trust doctrine	*Existing Information*: *Tools*:

Topic 3: Local knowledge	
Project Title:	**Information:**
Assessment of traditional ecological knowledge (TEK) regarding habitats, species, spaces and ecological processes	*Existing Information:* *Tools:*
Development of validation frameworks and incorporation of traditional ecological knowledge (TEK for MPAs)	*Existing Information:* *Tools:*
Assessment of the value managers place on TEK	*Existing Information:* *Tools:*

Topic 4: Communities of interest, managers and the general public	
Project Title:	**Information:**
Evaluation and comparative analysis of communities of interest, managers and the public's perceptions of each other	*Existing Information:* *Tools:*
Assessment and monitoring of the effects of demographic shifts on attitudes, perceptions, preferences and beliefs	*Existing Information:* *Tools:*

Topic 5: Attribution and uncertainty	
Project Title:	**Information:**
Evaluation of attribution processes (i.e. extent to which individuals take responsibility for their actions and how they perceive the cause and effects of these actions and their cumulative impacts) (e.g., the development of a stewardship ethic)	*Existing Information:* *Tools:*
Determination of the supertypes, (i.e. predominant categories of perceptions, preferences, attitudes, and beliefs that allow for cultural and regional differences) consistent higher order category, and associated behaviors	*Existing Information:* *Tools:*
Identification of depreciative attribution-based behaviors and assessment of effectiveness of information vs. consequence messaging in mitigating them	*Existing Information:* *Tools:*
Examination of how spatial and temporal uncertainties influence attitudes, perceptions, preferences and beliefs	*Existing Information*: *Tools:*

Topic 6: Aesthetics	
Project Title:	**Information:**
Examination of aesthetic ideals as they derive from or drive human-environmental interactions	*Existing Information:* *Tools:*
Assessment of the relationship between aesthetics and the development and maintenance of sense of place	*Existing Information:* *Tools:*

Topic 7: Environmental Ethics	
Project Title:	**Information:**
Assessment of environmental ethics of individuals and among communities of interest	*Existing Information:* *Tools:*
Examination of how environmental ethics influence decision-making regarding MPAs	*Existing Information:* *Tools:*

Theme 2: Community Organization

Theme Definition: This theme looks at the characteristics of communities associated with marine protected areas and the way these communities function, particularly as they relate to the use and conservation of marine resources. Topics addressed here may include demographics, ethnography, skills and capacity, human and social capital, awareness, vulnerability, participation, local knowledge, traditional management, and long-term visions.

Group Participants: Patrick Christie, John Kearney, Evelyn Pinkerton, Linda Felix, Caroline Kurrus, Bob Rutherford, Peter Fricke, Bob Leeworthy, Manoj Shivani, Christine Gault, Bonnie McCay, Susan Stonich, Carmen Gonzalez, Sarah Meltzoff

Facilitator: Jeff Langholz

Scribe: Anna Cummins

Research Tool "Packages" Commonly Used Across Several Topics and Projects

1. **Secondary: Existing information:** (census data, literature, already published data, etc.)

   Tools: Lit review, demo data, content analysis, mapping, etc.

2. **Primary: Direct interaction and Community studies:** Working both directly and indirectly w/ communities through analysis, group sessions, data collection, participant observation, etc.

   Rapid Tools: Rapid assessment, focus groups, expert/key informant interviews, pile/sort method, surveys, event analysis, ethnography, mapping, participatory mapping,

   Long-term Tools: Ethnographic, event analysis, ethnography, life/work history, case studies, surveys, observation, participant observation, mapping, observations

3. **Visual** (mapping, census, tagging)

   Tools: GIS, Participatory GIS, Remote sensing (include aerial, etc.) visual inventories, bioregional mapping, photography, capacity mapping, drama/theatre, etc.

4. **Analysis tools** (including computer based modeling)

   Tools: GIS, importance performance models, case studies, ex/post comparative analysis

(**NOTE:** It is important to distinguish between participatory and not, sharing information, ownership, access to info, etc.)

***NOTE:** Numbers in parentheses in the project columns below indicate the number of votes each project received during this group's prioritization process.

Topic 1: Capacity and Skills	**Description: Development and building of capacity & skills.**		
Project Title:	**General Existing Information Available**	**MPA-specific Information Available**	**Best Tools**
Ways to increase management community's social science skills (7)	M	L	Primary (P), Secondary (S), Analysis (A), Visual (V)
Best ways to empower communities to articulate/develop their own vision and tools (6)	H/M	L	P, S, V, A
Best way to "house and own" knowledge (6)	L	L	P, A, V
Ways to assess existing skills and capacity and gaps (5)	H	L	P, V, A, S
Best ways to develop leadership capacity in communities (5)	H	L	P, V, A, S

Topic 2: Management Processes	**Description: Governance, participation, partnerships.**		
Project Title:	**General Existing Information Available**	**MPA-specific Information Available**	**Best Tools**
How to reach marginalized groups (11)	M	L	P
What incentives are necessary for community compliance with MPAs (identify benefits) (6)	M	L	P, A
Which management structures and processes allow for flexibility and adaptation? (5)	M	L	A, S, P
Legislative needs for community based management (legal concerns/confines) (4)	L	L	S, A, P
Impacts of various management practices on communities (3)	H	L	P, V
Effect of community partnerships and networks on MPA management (3)	L-M	L	P, A
Role of technology in enhancing community-based management (3)	M	L	P, A, V
Relationship between legitimacy, participation, and compliance (3)	L	L	A, P
What are the appropriate roles for communities (3)	M	L	P, A, S

Topic 3: Descriptive Information	Description: Describes the communities & stakeholders.		
Project Title	**General Existing Information Available**	**MPA-specific Information Available**	**Best Tools**
Assess values and belief systems (10) (User groups, gender, access, dependence, etc.)	H	L	P, S, V, A
Local knowledge of resource (9)	M	L	P, V
Environmental justice: poor, minorities, small businesses, etc. (9)	M	L	P, V
Define broader community and its relationship within MPA (4)	M	L	P, A
Describe socio-economic conditions of regions and sub-regions (4) (State size, county, etc.)	H	L	S, P

Topic 4:Analytic Information	Description: Information flow and use among communities.		
Project Title:	**General Existing Information Available**	**MPA-specific Information Available**	**Best Tools**
Defining Community decision-making patterns and processes (10)	M	L	P, A, S
Indicators of community resiliency (8)	L-M	L	P/A, S
Historical perspectives on resource uses and changes (7)	H	L	P, S, A
Methods of information passing: which are most effective? (5)	H	L	P
Identify sources of power to permit political change (4)	M	L	P, A

Topic 5: Social Science *of* MPAs	Description:		
Project Title:	**General Existing Information Available**	**MPA-specific Information Available**	**Best Tools**
Historic social construction of MPAs (11)	H	L	S, P
Property relations and MPAs (8)	H	L	P, S, V
Evaluation of MPAs (5) (Still general, needs to be revisited)	H	L	P, A
Interdisciplinary study of MPA "successes and failures" (4)			
Ways to incorporate social science into management strategies (4)	M	L	A, P
Human-Environmental interactions (4)	M	L	P, S, A, V
Participatory Research Design and agenda setting (see below)	H	L	P, A

NOTE: Participatory versus Extractive Research Methods
During the discussion of research methods for communities and their interactions with MPAs, there was a detailed and spirited discussion that emphasized the need for the use of participatory research methods. There was general agreement that, in many cases but not all, that the participatory methods should be employed to (a) develop the research agenda, (b) choose research methods, (c) collect information, (d)

analyze data, (e) formulate recommendations, and (f) take action. This opinion is based on the understanding that involving communities, recognizing their heterogeneity, is fundamental to the successful establishment of MPAs, including broad compliance.

Theme 3: Cultural Heritage and Resources

Theme Definition: Cultural heritage and resources covers the historical aspects of marine protected areas. This includes but is not limited to nautical history (wrecks, replicas, etc.), maritime infrastructure (piers, lighthouses, locks, ports, forts, etc) and historical documents (books, pictures, music, recipes) relevant to in marine protected areas.

Group Participants: John Halsey, Jack Hunter, Dan Lenihan, Bob Schwemmer, Craig Severance, Sheli Smith, Bruce Terrell

Facilitator: Kristen Sortais

Scribe: Brian Caouette

Topic 1: Protection of Resources	**Description: Protection of maritime cultural resources including archeological, historical and ethnographic resources. This extends to databases representing these topics.**
Project Title:	**Information:**
Assess alternative strategies for providing security for archeological site inventories, related ethnographic data, and existing collections.	(see Table 1 below)
Assess the current status of management plans and levels of protection of cultural resources in existing MPAs.	
Assess and evaluate the effectiveness of monitoring programs for known archeological sites in existing MPAs, including but not limited to visitor resource impact studies.	
Assess and evaluate published and unpublished behavioral studies regarding recreational diving attitudes toward submerged cultural resources.	
Assess and evaluate innovative approaches to stewardship of maritime cultural resources in order to develop a model MPA project for wider application.	

Topic 2: Cultural Resources Characterization	Description: Implementing inventory, documentation, and evaluation of maritime cultural resources (MCRs).
Project Title:	**Information:**
Evaluate the potential for pre-historic and historic archeological resources within MPAs.	(see Table 1 below)
Determine the nature and extent of underwater archeological sites in existing MPAs.	
Develop model program to carry out ethnographic study with knowledgeable people who have maritime information.	
Assess and evaluate existing efforts to integrate submerged natural and cultural resource surveys and inventories	
Assess and evaluate standards with regard to inventories and information documentation in order to create conformity for MPAs	

Table 1.Available information and applicable tools for proposed projects.

NOTE: *Projects are prioritized in the order they appear. Also the full project titles can be found above.*

Theme: **CULTURAL HERITAGE AND RESOURCES**	**Level of Info. Available**[1]	Social science surveys	Key Informant Interviews	Literature Review	Field Investigations[2]	Expert Opinion	Focus Groups	ASCAR[3] - Impact Studies	Case Studies	Predictive Modeling	Peer Reviews
Projects		**Tools/ Mechanisms**									
Topic: Protection of Resources											
Alternative strategies for security	H	X	X	X		X	X		X		
Current Status of Management Plan	M	X	X	X		X	X				
Assess Effectiveness of Monitoring	M	X	X	X	X	X	X	X	X		
Behavior Studies of Divers	H	X	X	X		X	X		X		
Assess Innovative Programs-for Model Program	M	X	X	X	X	X		X	X		X
Topic: Cultural Resource Characterization											
Pre-historic and Historic Arch. Resources	L		X	X	X	X			X	X	X
Determine Arch. Sites	H	X	X	X	X	X		X	X		X
Model Program for Ethnographic Data	H+L[4]	X	X	X		X	X		X		X
Integrate Submerged Resource Data	M	X	X	X		X	X		X		
Standards and Inventories	H	X	X	X		X	X		X		X

Additional Comments from the Group:

"To reinforce Jack Hunter's concerns, since there were no cultural resource people on the governance group it is important to note that although we have great hopes that the results of the workshop will improve and build on what has gone before in terms of management of cultural resources within MPAs, at a minimum any future work must meet the existing Historic Preservation Act specifically Section 106 and the Abandoned Shipwreck Act, as well as any state laws that might exceed the minimum national requirements." Sheli Smith

[1] Ranked on a scale of high (H), medium (M), low (L) level of info availability.
[2] The group decided that since this was NOT a natural science-focused discussion and that there are many manifestations of "field studies" they would just leave the tool name as it is.
[3] ASCAR = Archaeological Site Condition Assessment Record
[4] In the case of info availability for training programs, the group decided there was a high (H) level of availability. However, in terms of ethnographic data there is a low (L) level of availability.

Theme 4: Economics of Marine Protected Areas

Theme Definition: This theme deals with economic conditions and trends associated with MPAs. Topics include, but are not limited to, market and non-market values, costs and benefits, and positive and negative impacts associated with marine protected areas.

Group Participants: Juan Agar, Lorraine Lomax, Dan Huppert, Rita Curtis, Mike Hamnett, Rod Ehler, Astrid Scholz, Dave Fluharty, Rashid Sumalia, Betsy Nicholson

Facilitator: Heidi Reckseik

Scribe: Jim Chan

Note: projects are not in priority order, but may reflect a logical sequence.

Topic 1: Cost Benefit Analysis	**Description: Theory, review and application of Cost Benefit Analysis to Marine Protected Areas, including definition of costs and benefits, consideration of basic groups (recreational, business and tourism, etc.), different kinds of MPAs, specific scenarios (x%), recognizing cultural values including aboriginal values, and net benefits to current and future generations.**
Project Title:	
Identify categories of costs and benefits for MPAs.	
Analysis of usefulness and limitations of traditional valuation methods and development of new methods.	
How to measure the value of reducing extinction risk, maintaining biodiversity, decreasing overexploitation, etc	
Costs and benefits of specific management measures within MPAs for different groups over time.	
Comparison of the costs and benefits of MPAs to alternative marine management regimes for achieving a range of objectives (i.e., viewing MPAs as one tool in the toolbox / portfolio).	

Existing Data/ Info:

- CBA vast literature, but not as much specifically on MPAs
- More information on costs than benefits
- Hard to quantify benefits because the science and monitoring are not there
- Hard to get rigorous information on fishing costs
- Economists need to work with biophysical models
- For CA sanctuaries plan revision, develop a biogeographic GIS, ecosystem data and economic data spatially (lessons learned from Channel islands)
- In Canada, Ecopath/ with Ecosim economic modeling; also spatial so allows protected area modeling
- Pacific Coast groundfish reduction project, data layers include fisheries, ecological information, economic

Scale, Duration, Cost:

- All of these things must be applied by region, with specific goals and objectives. We need to encourage pilot projects that build on existing work. Pull together mgrs to understand all CBA current projects.
- Need a meeting to identify all existing CBA projects; this is a feasible thing to do.
- Send an email out to all sanctuary and reserves (NERRs) managers to identify inventory CBA at all sites (*action Rod Ehler to share with group)

Topic 2: Baseline information	**Description: Step 1: Develop a national inventory of existing socioeconomic data and analyses pertinent to MPAs. The scope would be comprehensive, including: (a) commercial fishery economic data and analyses, (b) recreational fishery data and analyses, (c) shore-side industry, (d) fishing communities, (e) non-consumptive users (e.g. whale watching, ecotourism), (f) existence value, and (g) coastal development.** **Step 2: Identify the gaps / core data needs.**
Project Title:	
Inventory existing economic information on (a) commercial and recreational fisheries, (b) subsistence fishing, (c) non-market valuation, (d) marine recreation (non-fishing), (e) marine research, (f) shipping and other industries (e.g. shipping lanes, fiber-optic cables), (g) coastal development (e.g. tax data, property values, census data).	
Organize all inventory information in a clearinghouse (i.e. a living inventory).	
Identify gaps, prioritize, and fund them.	
National analysis of MPA spending and other marine resource management spending.	

Existing Data/ Info:

- Does the Nat. Ocean Data Center have any socioeconomic data?
- Confidentiality issue hard to resolve even w/ agencies
- New structure may help (ex. central repository)
- If can't have central repository could we do a clearinghouse that could identify baseline
- Bob Leeworthy database – collection of references to non-market valuation
- Rita has a list of commercial economic data (NMFS)
- West Coast Economic Data plan (Astrid)
- Atlantic Coast Co-operative Statistics Program – includes socio-economic
- Marine Economic Statistics Survey (NMFS website)
- California Dept. of Fish and Game collects spatial fishing data (landings data)
- PacFin, RecFin, part of the fishery info. network (one for each coast)
- Marine Recreation industry for Hawaii
- Marine sanctuaries have surveys for marine recreation
- Joint mgmt plan review CA sanctuaries focusing on recreation, not community economics
- Recreation assessment was just done for Gray's Reef, Humpback is needed
- Bob Leeworthy – info. from rec. fishing in FL
- Bob Leeworthy, Pete Wyle – needs a Sea Grant fellow – in order to mine his knowledge and expertise. Sea Grant fellow for Bob via MPA Center

Topic 3: Put ecological time and spatial scale dynamics into economic theory and tools.	Description: Put ecological time, space and dynamics into economic theory and analyze the implications for deeply embedded technological assumptions (e.g. discount rate). Use this ecologically expanded framework to look at spatially heterogeneous behaviors of economic agents in MPAs. (Note: some theory exists, but we need data and models).
Project Title:	
Develop system dynamics models that integrate the natural and human systems (e.g., food webs with people for (a) coral reefs, (b) estuaries, (c) demersal, (d) anadromous, and (e) pelagics).	
Develop spatially explicit economic theory and applications for marine resources management (e.g., with GIS, Random Utility Models).	
Incorporate ecological time and spatial scales into analyses of current impacts and uses.	
Develop modeling methods to deal with ecological uncertainty.	
Develop methods to address intergenerational equity and transfers.	

Existing Data/ Info:

- Project 1: Could be valuable to pull these folks together and create a model
    - There are some models currently under development: Demersal - Astrid, Hawaii has a coral reef project (Herman Caesar, Mike, Bob Costanza, Cheasap Bay, PNCERS), NOAA funded in estuary work –integrated oceanography, phys, bio for estuaries, U of M – longline modeling (HI, Atlantic) longline work, PFRP (Pelagic Fisheries Research Program in HI should be doing it)
    - NCEAS (National Center for Ecological Assessment and Synthesis) – Santa Barbara did a good set of papers – on the web at Stanford
    - GIS stuff starting to emerge – Sea Around Us project GFR project –, big NMFS project compile W. Coast info.
    - Mark Monaco's work → habitat mapping (GIS, Marine GIS Kevin Foster at US Fish and Wildlife in HI)
    - Ecotrust – hosting a Marine GIS meeting in July or the other projects we need to gather system dynamics folks together also. Projects and themes overlap.

Topic 4: Non-market values (use and non-use)	Description: Develop methods for estimating non-market values, including values of ecosystem services, in order to compute total economic value. This should encompass the social and cultural dimensions provided by MPAs, including a) bequest value (i.e., value attributed to the availability of MPAs to future generations), b) existence value (i.e., value derived from the continued existence of MPAs independent of use), c) option value, and d) use values (e.g. recreational fishing).
Project Title:	
Feasibility of exploring benefit transfers using existing data.	
Alternative methods to contingent valuation (e.g., conjoint analysis, rapid appraisal techniques).	
Assess using actual resource trade-off decisions made by governments / regulatory bodies / courts (e.g., forego $17 million development to protect mangroves, court-imposed fine for the Exxon Valdez spill as indicators of non-use values).	
Assess using reparations, mitigation, and restoration as indicators of resource value.	
Explore interdisciplinary work with philosophers and anthropologists.	
Comparative study of valuation methods specifically for MPAs.	
Development of methods for estimation of non-market use values for MPAs (e.g. conjoint analysis, travel cost method).	

Existing Data/ Info:

- We should look into other disciplines and approaches beyond economics to get VALUES
- (ex. Jeremy Jackson does for the fish records ex. Pursue non-traditional ways of getting values)
- Can you work with anthropologists so that they would ask more questions to get more meaningful economic values?
- Existing methods from the forestry service
- NOS has a database for non-market values?
- Mark Miller – Washington – working with graduate student on non-market values work (mostly qualitative)
- NOAA's damage assessment center (created out of the Valdez accident)
- Restoration good way to look at non-mkt value
- FKNMS – assigns restoration costs/ fines for coral damage due to grounding, spills
- Cheryl Scannell (NOAA/GC) at Sanctuaries and reserves NOAA vessel grounding workshop in Hawaii
- USC Southern California Beach study
- PAIED comparison damage scale approach, Ratana Chuenpagdee

Theme 5: Governance and Institutional Structure

Theme Definition: This theme covers the institutions (Federal, tribal, state, local, and NGOs) responsible for managing the resources in marine protected areas. Component topics include the capacity of these institutions, their funding sources, jurisdiction, management strategies and implementation approaches, as well as the nature of their interactions with the public and with other institutions.

Group Participants: Joe Uravitch, Doug Yurick, Peter Wellenberger, Daniel Suman, Maureen Wilmot, Omer Chouinard, Lydia Bergen, Josh Eagle, Helen Fast, Mary Jean Comfort, Sarah Lyons, Dan Brumbaugh

Facilitator: Carl Gouldman

Scribe: Mara Hendrix

Topic 1: Jurisdictional structure	**Description: Examining the nature of interagency, intra-agency and intergovernmental interactions and their relationships to MPA planning, establishment, management and evaluation: Designing optimal structures.**
Project Title:	
What existing national policy mechanisms provide adequate and effective integration of local jurisdiction and ecosystem dynamics? (e.g. ITQ)	
How does one implement national policy objectives with local and regional mechanisms?	
How to match jurisdictional scales with ecosystem processes?	
What are the institutional models that can be used for management of shared resources by multiple authorities?	
Compare the utility of a single agency versus a multi-agency approach to MPA management?	
What are the existing models for nesting MPA management within broader ocean and coastal management regimes (e.g. ICM, EEZ)?	
What are the nature and scope of aboriginal/tribal involvement and rights in the area of interest?	
Does the legal authority exist to meet various MPA objectives?	

Existing Information: Medium

Tools: Case studies, comparative analysis, GIS database for aboriginal data (low at this time, literature reviews, personal interviews, expert surveys). Send questions to a wide arena of people that are working in the field and see what needs to be done.

Topic 2: Public participation and stewardship	Description: Examination of models for the integration of the public into MPA decision-making.
Project Title:	
What effective models are there for governance in the marine environment?	
What governmental and non-governmental models historically have achieved successful environmental stewardship that might be adapted to current applications?	
What effective models are there for incorporating public participation into ocean governance?	

Existing Information: High

Tools: Case Studies, Literature review, Surveys of experts as well as local user focus groups, interviews, historical resources

Topic 3: Site or network planning and establishment	Description: Evaluate information, resources, legal authorities, and structures that are needed to establish a site or network of MPAs
Project Title:	
What is the proper role and composition of advisory bodies in planning and establishing MPAs?	
What governance mechanisms are effective for various MPA objectives and settings?	
What are the most applicable models for dispute resolution in MPAs?	
What is the effective mix of expertise needed to establish an MPA?	
Does the legal authority exist to meet various MPA objectives?	

Existing Information: medium to high

Tools: User analysis, GIS tracking, case studies, literature reviews, analysis of demography

Topic 4: Site or network management and evaluation.	Description: Evaluate information, resources, legal authorities, and structures that are needed to manage and evaluate MPA sites or networks.
Project Title:	
What governance mechanisms are effective for various MPA objectives and settings?	
What are the incentives for non-federal involvement in the governance of MPAs?	
What is the effective mix of expertise needed to manage and evaluate an MPA?	
What is the appropriate mix of enforcement incentive mechanisms for MPAs?	
What are the most applicable models for dispute resolution in MPAs?	
Does the legal authority exist to meet various MPA objectives?	
What is the proper composition of advising bodies in managing and evaluating MPAs?	

Existing Information: Medium to high

Tools: case studies, literature reviews, surveys

Topic 5: Institutional analysis	Description: Analyze, understand and influence governmental and non-governmental institutional cultures.
Project Title:	
What are the key features of non-governmental institutions? e.g. decision-making, attitudes structure and funding	
Relationship of the MPA role within to the broad agency mandate.	
Understanding the ethical frameworks that govern institutions.	
How to initiate institutional change to accommodate MPA planning and management?	

Existing information: Medium –low

Tools: Refer to the sociological community for hard-core social science

Theme 6: Use Patterns

Theme Definition: This theme addresses the way stakeholders use resources in marine protected areas. This includes extractive and non-extractive uses.

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NOTE: Before brainstorming topic and project ideas, the use pattern group identified the following extractive and non-extractive users: Non-Commercial Users, Managers (Management), Off-site users, Fishing, Tourism Use, Oil and Natural Gas, Gravel and Sand Uses, Biomedical, Seaweed, Military, Science, Shipping, Sub-Marine Cables, Coastal Industries, Coastal Uses, Aquaculture, Education, and Broader Recreational Users.

Topic 1: Baseline data on patterns of use and the impacts of that use.	**Description: Studies at a variety of scales (temporal and geographic- current demographics and profiles, long-term temporal data, long-term forecasting)- context of understanding conflicts among users.**
Project Title:	
Create a GIS system of use zones based on an info-based content analysis covering categories of: fisheries, recreation, industry, and transport.	Info avail: All available existing data Tools: GIS system
Comprehensive use pattern analysis for minimum of 8 sites- (fisheries management zones). Use categories include: fisheries, recreation, industry and transport.	Info avail: Variable depending on category Tools: All tools, GIS
Studies on impacts (social, economic, cultural, ecological, biophysical) resulting from changes in use patterns related to MPAs: o Disaggregating user groups according to social and cultural characteristics. o Long-term temporal monitoring data (social, biophysical). o Ecosystem based analysis on temporal and spatial scales (regional, national and international).	Info. Avail: Relatively few data Tools: Any that are applicable

Topic 2: Political ecology of MPA-related use patterns.	Description: (a) Understanding legislative institutional, social, environmental and economic dimensions of decision making, (b) understanding legal and historic frameworks around "rights and responsibilities" of use.
Project Title:	
Conduct institutional ethnography of a past, current or proposed projects to determine the political ecology.	Info. Avail: varies according to context Tools: surveys, interviews
Ethnographies to determine values, beliefs and perceptions of all stakeholders related to use patterns.	Info. Avail: varies according to context Tools: focus groups, interviews, kitchen table meetings
Critical analysis of legislative code and place-based analysis that allow for use of marine resources.	Info. Avail: medium availability of data Tools: place based interviews and studies

Topic 3: Historical Ecology	Description: Long-term historical data for goals and objectives.
Project Title:	
Case studies to combine retrospective biophysical and social science data (from prehistoric to historic time) to assess the scope contemporary marine resource issues.	Info avail: medium-high availability Tools: oral history, historical texts, archives, archeological data
Critical analysis of long-term (prehistoric to historic) patterns of human use and its impacts.	Info avail: medium-high Tools: oral histories, archival
Interactions between patterns of cultural diversity and biodiversity.***	Info avail: Tools: Archival, oral histories

Topic 4: Refining methods for developing, analyzing, refining and assessing qualitative and quantitative data.	**Description: Valuation for use, methods for weighing values, sustainability assessment, representation.**
Project Title:	
Developing and applying measuring techniques for tangible and intangible values associated with MPAs	Info avail: medium Tools: knowledge of existing literature, project specific
Developing decision-making tools that can integrate qualitative and quantitative data and the representation of that data. (For example, GIS).	
Develop methodologies and techniques to integrate qualitative and quantitative data across sectors and disciplines.	
Investigating ethical issues associated with social science research on use patterns for MPAs.	Info avail: Tools: Case studies, research, review of literature, guidelines
Develop a toolbox for social and cultural sustainability assessments for future use patterns.	
Develop a methodology to conduct integrative assessments of the effectiveness of social and biophysical results.	
Develop and refine predictive modeling techniques of use patterns.	

Topic 5: Guiding Principles for establishing limits on "best available" data per context and time frames of study or collection.	**Description:**
Project Title:	
Review and synthesize existing social science data related to planning management evaluation of MPAs- tease out rules of thumb.	

CROSS-CUTTING ISSUES

At the end of the workshop, the groups identified a number of issues and needs tjat cut across several themes. These concepts are listed below.

1 Short and long term data needs

2 Theoretical, conceptual and "practical", immediate needs (staying ahead of the power curve)
- -Context or situation dependent

3 Research for, versus research on/of

4 When is there "enough"?
- -Achieving redundancy?
- -Enough to inform and convince (diverse constituencies)
- -Best-available science/legal standard
- -Successful detection and explanation
- -Ability to detect success
- -Meets peer-reviewed standards

5 Differing perceived needs of managers, scientists and constituents

6 Crosscuts with other non-social science, non-MPA sectors
- -Development of broad inter-disciplinary research

7 Crossing the land-sea interface
- -NERRs to further objective

8 Data management issues

(#'S 6, 7, and 8 generally), "integrated" data collection and management

9 The false opposition of MPA's *as opposed to* other policy and management tools

10 The structure of the MPA social science "establishment"
- -Personnel
  - -Re-tooling/overloading
  - -Collaborations (public-private partnerships)
  - -Specialists vs. generalists- sometimes really do need a social scientist (both organizations differently)
  - -Academic reward structures
- -Dollars and other resources
  - -Steering towards social science
- -Linkages among scientists, constituents and policy and management entities (role of education and training), i.e. fellowships and placements
  - -New channels- funding sources and programs
  - -Nexus among managers, science needs, researchers, and funding sources

11 Grassroots partnering

12 Glossary of terms for cross-disciplines
- -Also in training and education

13 Understanding and managing change- institutional, social

14 Social equity

15 Need to think in terms of not just projects, but programs

16 Increase awareness of social science as discipline (in a user-friendly form)
- -Multiple product forms—brochures, training, etc—and follow-through
- -Training, education, and outreach (as a major topic heading)
- -Collateral products (K-12 & adult ed.) with research products
- -Impact assessment as positive, not just negative, factor
- -Marketing the socioeconomic research concerning MPAs
- -Social science as a catalyst for improved marine conservation

17 Learning from/sharing with other models (international scales too)

18 Public education, training, and outreach are different from the conduct of social science, and is not a substitute for social science
- -Soliciting public opinion does not substitute for social science

19 Accountability for meaningful social scientific results within natural science projects (full partnership with social scientists)

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